



Methods and Effects of Securing Water Supply to Citizens Even at an Event of Sudden Accident



-Development of Water Supply Stations for Supporting the Stable Water Supply in Tokyo Metropolitan Area-

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INTRODUCTION

- Japanese waterworks have become a major lifeline supporting urban life and socio-economic activity.
- Therefore, it is the mission of water utilities to respond properly and without delay to issues and risk that waterworks face, such as degradation of facilities, earthquakes, and climate change.
- Tokyo Waterworks has developed a diverse range of facilities in order to fulfill this mission, including planned promotion of water supply stations.
- Here we introduce measures for securing water to supply to users (customers) even in the event of accidents or earthquakes, by developing water supply stations.

Development of Water Supply Stations for Supporting the Stable Water Supply in Tokyo Metropolitan Area

1. Water Supply Stations

- Water supply stations include distribution reservoirs and distribution pumps, as well as facilities to distribute water to users in the water distribution area that supply station is responsible for (Figure 1).
- ① Function to temporarily store tap water processed at purification plants in a distribution reservoir and distribution time fluctuations.
- ② Function to use reservoir water when there is an accident to eliminate or mitigate the impact of water supply.

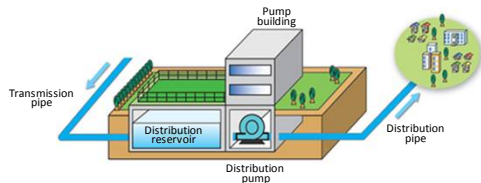


Figure 1. Conceptual Diagram of a Water Supply Station

*Distributed amount varies dramatically when there is a major event, but by storing tap water in distribution reservoirs, it is possible to stably supply water. (Figure 2).

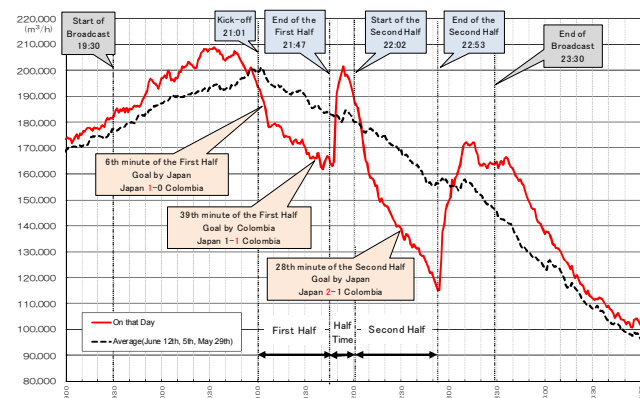


Figure 2. June 19th, 2018 (Tuesday) 2018 FIFA World Cup Russia Distributed amount change during the Japan vs Colombia match

2. Principles of Development (Figure 3)

- The distribution reservoir capacity of water supply stations was set with the goal of securing the amount that flows in 12 hours at the design maximum daily supply for 1) time fluctuation adjustment and 2) an emergency response.
- Consider an appropriate size for the water distribution area where installed.

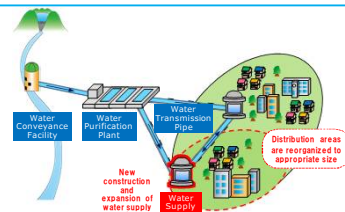
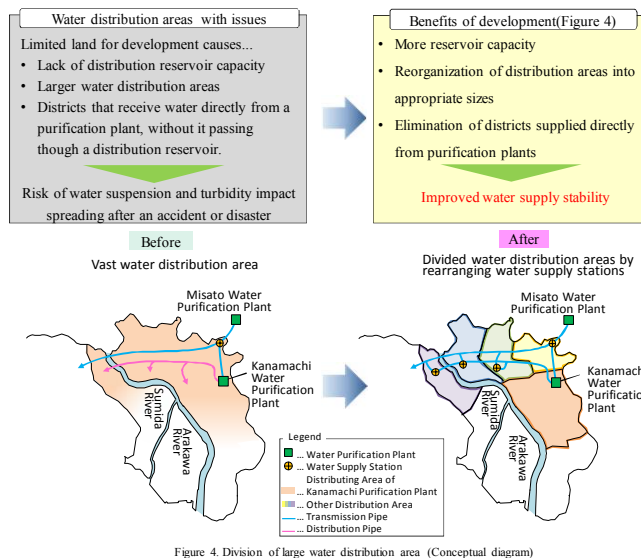


Figure 3. Development of Water Supply Stations

3. Construction of New Water Supply Stations, Expansion of Existing Stations, and Division and Reorganization of Water Distribution Areas



Emergency water supply measures at water supply stations

1. Emergency water supply stations (Figure 5, Figure 6)

- Water supply stations are designated as emergency water supply stations, which conduct emergency water supply when there is an accident or disaster.



Figure 5. Emergency Water Supply Area in a Water Supply Station

- Water taps are installed permanently in the emergency water supply area, so that local government officials can conduct emergency water supply activities for residents.



Figure 6. Water taps

2. Reinforced in-house power generation facilities (Figure 7, Figure 8)

- To continue water supply services even in major blackouts, it is necessary to be able to generate power independently.
- Therefore, in-house power generation facilities large enough to maintain average daily supply are being installed.



Figure 7. In-house Power Generation Facility



Figure 8. Fuel Tank

Conclusion

- Tokyo Waterworks is working to develop water supply stations as an effort to build a water supply system that will be strong and stable well into the future.

3 efforts in water supply station development

- Secure 12 hours supply, the design maximum daily supply, as distribution reservoir capacity
- Install emergency water supply areas in water supply stations to enable swift response
- Secure in-house power generation facilities large enough to support average daily supply even in the event of a major blackout

Secure water supply for residents as much as possible even in the event of a sudden accident or the like



- We will promote development of effective and efficient facilities, provide technology and know-how cultivated so far as part of technical cooperation on waterworks utilities improvement in foreign cities